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To evaluate the effectiveness of the remedial program at Fresno State College, 679 students who scored below the fifteenth percentile on the Cooperative English Test were divided into two groups. Group I contained those enrolled in the remedial program; Group II, those in three or more academic/transfer courses. The groups were compared by GPA for four consecutive semesters, noting the attrition rate, and by seeking a significant difference in the GPA after two years. The validity of the comparison is limited by the fact that some students in the academic courses should probably have been in the remedial program and that the effect of withdrawals (especially of those with low GPAs) was not taken into account. Among the observations were: (1) the dropout rate was about the same over two years; (2) Group I's GPA dropped between the first and fourth semester, Group II's increased; and (3) Group I students did not outperform those in Group II who should have taken, but did not take, the remedial courses. Although the exp'riment did not show that the remedial program improved the students' basic skills, one possible conclusion is that those directed to the remedial program did no better or worse than those in the academic program who should have been so directed. The author emphasizes that this study does not concern students in terminal or vocational programs. (HH)

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FRESNO CITY COLLEGE

OFFICE OF THE DEAN OF STUDENTS

MARCH, 1968

A STUDY OF "REMEDIAL" STUDENTS

A Remedial Program for Fresno City College was inaugurated in March, 1965. Students entering F.C.C. in the fall semester of 1965 were subject to the policies of the Remedial Program (see Appendix). Briefly, the policies provided that students who scored below the fifteenth percentile on the Mechanics of Expression section of the Cooperative English Test be enrolled in a stipulated set of classes including Basic English, Reading Improvement, Basic Math, Orientation, plus Health Education or a course of an activity nature, such as art, music or drama, or in an occupation area which does not require basic English or mathematical skills.

In the Fall semester of 1965 a total of 679 students who scored below the fifteenth percentile on the Cooperative English test enrolled at Fresno City College. It was the purpose of this study to attempt to evaluate in some way the effectiveness of the Remedial Program policies.

The Method. In order to determine whether or not the Remedial Program was effective, two types of students were identified as follows:

Remedial Group - Those students who had scored below the 15th percentile on the Cooperative English test who were enrolled in the Remedial Program subjects (Basic English, Reading Improvement, Basic Math, and Orientation) the first semester.

Academic Group - Those students who had scored below the 15th percentile in the Cooperative English test who were enrolled in three or more academic courses designed for transfer to a four year college.

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These two groups of students were compared with each other in two ways. The first method of comparison involved calculating and comparing the groups' cumulative average grade point average for four consecutive semesters and noting each group's attrition rate. By studying these data we hoped to determine the Remedial Group's and the Academic Groups relative performance with respect to the attrition rate and the change in the grade point average over the two year period.

The second method of comparison involved finding the amount of difference between the cumulative grade point averages of the two groups after two years and determining whether or not this difference was significant. This significance was tested by use of the "t-test" with a .05 level of significance defined as acceptable. In order to make an accurate comparison of differences in grade point averages between the Remedial and Academic groups, we divided each of the original groups into three sub-groups and compared equivalent sub-groups. The sub-groups were defined as (1) those who had attempted a total of at least 48 units over the two years, (2) those who had attempted at least 24 units but not more than 47½ units over the two years, and (3) those who had attempted fewer than 24 units over the two years. This type of division was made so that extreme G.P.A.'s of students only completing a minimum number of units would not have a disproportionate effect upon the over-all averages.

Limitations. At the time the Remedial Program was initiated an adequately designed type of longitudinal study was not authorized. Therefore, the study evolved as described in prior paragraphs and certain limitations have become apparent.

Limitation 1. There may be some question as to whether or not all the students listed in the Academic Group are truly "remedial" students, even though they scored below the fifteenth percentile on the English Cooperative test. We therefore have the condition of the two groups possibly not being comparable. We know that many of these students so classified as "remedial" were unable to get into the remedial type classes because the classes were closed by the time the student registered. This forced the would be Remedial student to take classes which were open, these being academic classes predominately. However, some of these students may have been in these academic classes, not by chance, but because their counselor advised them to enroll in these classes on the basis of criteria other than placement test scores (such as high school record and other test score results).

Limitation 2. In an attempt to evaluate the effectiveness of the "Remedial Program" we defined "survival" as being an important factor. We felt that "success" was in some way related to the ability to stay in college over a period of time. We recognized the fact that some people may withdraw from college for reasons other than that of being unsuccessful. But we did not take into account the effect that withdrawal from college might have upon the statistics. We must bear in mind that as the low achievement group withdraws from college or is disqualified, the grade point average of the group that remains may increase, not because the group improves, but because the low G.P.A.'s are being eliminated. Another consideration is the fact that some people may have withdrawn and re-entered at some subsequent semester. However, it is felt that the effect upon the statistics due to this would be negligible.

The Findings. As had been previously mentioned we have attempted to evaluate the Remedial Program in two different ways. Table I indicates the progressive performance of the Remedial Group and the Academic Group over a two year period. The mean grade point average of each group were calculated by using cumulative G.P.A.'s of those students enrolled in Fresno City College for that particular semester.

TABLE I

		Remedial Group	Academic Group
Fall 1965	Number of Students	62	103
	Mean Grade Point Average	1.92	1.72
	Standard Deviation	.73	.78
Spring 1966	Number of Students	55	91
	Mean Grade Point Average	1.61	1.83
	Standard Deviation	.57	.64
	Per Cent of Original Group Remaining	89	88
Fall 1966	Number of Students	42	67
	Mean Grade Point Average	1.67	1.99
	Standard Deviation	.52	.50
	Per Cent of Original Group Remaining	68	65
Spring 1967	Number of Students	41	68
	Mean Grade Point Average	1.72	1.97
	Standard Deviation	.50	.61
	Per Cent of Original Group Remaining	66	66

Tables II, III, & IV show the average cumulative grade point averages of the two groups and the critical ratios (t) of the differences between these means, these statistics being broken down into three groups as explained in the section entitled "The Method."

TABLE II

Difference between mean G.P.A.'s of students completing 48 units or more at end of two years

	No.	Mean G.P.A.	Standard Deviation
Remedial Group	23	1.93	.37
Academic Group	53	2.07	.47

Difference between means	.14
Standard error of Difference between means	.104
Critical Ratio (t)	1.4

TABLE III

Difference between mean G.P.A.'s of students completing 24 through 47½ units at end of two years

	No.	Mean G.P.A.	Standard Deviation
Remedial Group	29	1.36	.52
Academic Group	33	1.70	.69

Difference between means	.34
Standard error of difference between means	.16
Critical Ratio (t)	2.13

TABLE IV

Difference between mean G.P.A.'s of students completing less than 24 units at end of two years

	No.	Mean G.P.A.	Standard Deviation
Remedial Group	10	1.37	.77
Academic Group	16	1.05	.93

Difference between means	.32
Standard error of difference between means	.35
Critical Ratio (t)	.91

Discussion. Table I indicates that the Academic Group's grade point average increased from 1.72 to 1.97 over the two years whereas the Remedial Group's G.P.A. decreased from a 1.92 to a 1.72. At the same time the percentage of withdrawing students was almost exactly the same in the two groups. Obviously the performance of the remedial group was different than that of the academic group. But to determine why it was different and whether or not the Remedial Program as such was a contributing factor for this difference is a more difficult problem.

First we might note that the Remedial Group starting with a 1.92 G.P.A. at the end of the first semester, dropped to a 1.61 the second semester, then recovered to a 1.67 and 1.72 for the third and fourth semesters respectively. This may indicate that the Remedial Group students benefited from the "different" grading standards of the Remedial Program. However, once removed from the Remedial Program, possibly they were unable to compete with the general population of the school. Some persons would point out that the Academic Group actually outperformed the Remedial Group in every semester except the first semester, and that is when the Remedial Group had the "shelter" of being in the Remedial Program and receiving grades commensurate with that special level. We should not accept this

argument without first realizing that, as mentioned before, some of the students in the Academic Group could have been students not placed in the Remedial Group because of other evidence indicating higher abilities.

Summary 1. The writer feels that the interesting facts observable in Table I are as follows:

1. There was no percentage difference between the two groups regarding the "holding power" of the programs, i.e., the drop-out rate was essentially the same each semester over a two year span of time.

2. The G.P.A. of the Remedial Group dropped considerably when comparing the first and fourth semester cumulative averages whereas that of the Academic Group increased.

Table II shows that the difference between average G.P.A.'s of students in the Remedial Group and those in the Academic Group, who had completed at least 48 units at the end of two years was very small. This difference was not significant at the .05 level as determined by application of the t-test.

Table III shows that the Academic Group students who had completed between 24 and 47½ units in two years achieved a higher G.P.A. than the Remedial Group students in like circumstances. Application of the t-test showed the difference to be significant at the .05 level.

Table IV using the same method of comparing, showed no significant difference between the two groups (Remedial and Academic) of students who had completed fewer than 24 units over a two year period.

If we assume that the Remedial Program serves its purpose by helping those in it repair their deficiencies in basic subject skills such as reading, grammar, arithmetic, etc., then we would expect those students who took remedial courses to outperform their counterparts who should have but did not take remedial courses. Tables II, III, and IV indicate that this

is not the case at the end of two years. In fact, in one category the reverse was true.

Summary 2. There was no evidence to indicate that the Remedial Group had outperformed the Academic Group in any respect when the basis for comparison was cumulative grade point averages taken at the end of two years of college.

Conclusions. At the outset of this project we had hoped to be able to determine whether or not the Remedial Program was enabling the Remedial student to improve his basic skills in reading, writing, arithmetic, etc., to the extent that he would be able to compete at the college level with better prepared students. This research project yielded results which did not answer the basic questions we were asking, but which do give us some insight into the overall problem. The results do suggest several possibilities, none of which could be accepted as fact regarding the effectiveness of the Remedial Program. The one possible valid conclusion that evidences itself throughout this project is that the placement of a student in the Remedial Program according to the Remedial Program Guidelines was no more damaging to the student than placement in the Academic Program; and likewise, placement in the Academic Program, though the Guidelines may have indicated he belonged in the Remedial Program, was no more damaging to the student than placement in the Remedial Program.

We should be very careful to emphasize that this whole study concerned the student not in a terminal or vocational directed program. If there are questions about the value of the Remedial Program as a result of this study, those questions should be associated only with the student who indicated an interest in "academic" pursuits at time of entry to Fresno City College

as a freshman. In other words, terminal students in the Remedial courses may very well achieve quite differently than those included in the study.

Recommendations. It is quite evident that further evaluation of the Remedial Program is necessary. It is also evident that in order to evaluate the Remedial Program adequately a research project must be properly designed. An ideal way to determine the effectiveness of the Remedial Program would be to select at random one-half of the students who should be in the Remedial Program and place them in the Remedial Program. The other one-half of the students who should be in the Remedial Program would be allowed to enroll in any courses for which they had the prerequisites except the Remedial Program courses. At the end of the stipulated time the two groups could be compared, using the latter group as the control group. All indications lead to the conclusion that such placement of students would not be of a damaging nature. And until such time that we are allowed to so place these students and study their progress, the controversy will continue as to the value of Remedial Program.

Loren Gaither
Counselor

Appendix.

FRESNO CITY COLLEGE

To: ALL PARTIES CONCERNED Date: March 23, 1965

From: John McCuen, Dean of Instruction

Regarding: REMEDIAL PROGRAM FOR FRESNO CITY COLLEGE

In keeping with its important and traditional function of assisting students in repairing academic deficiencies, Fresno City College has for some time, through its counseling processes and curricular programs, provided special offerings for students needing this assistance. However, this year the College administration and various faculty members felt a need to rededicate themselves to this function and to clarify a rather specific program for the students of limited ability and/or achievement.

Consequently, a subcommittee was formed from the Curriculum Committee to study this problem. What follows is a final report which includes most elements of the committee's report as approved by the total Curriculum Committee. The report also includes necessary technical modifications brought about because of certain testing and curriculum realities.

1. Any student entering Fresno City College who scores at the 14th percentile or below on the Mechanics section of the English Co. Op. will be a remedial student and his registration forms will be so marked, provided other important factors (high school grades, other tests, etc.) support this type of placement.

2. If this student indicates that he is not interested in a transfer program or an Associate degree program, but is rather a special or limited student interested in selected technical-vocational-occupational courses, courses in the performing arts, etc., he will be allowed to pursue his objective and whether or not he takes remedial courses will be voluntary. However, before this student can shift his goal to a transfer or Associate degree program he must successfully complete the one semester remedial program.

3. The student who, after careful counseling, still chooses a transfer or Associate degree objective must take a specified program designed to repair his deficiencies.

   a. He must take a minimum of 9 units and be limited to a maximum of 13 units plus physical education.

b. He must take:

(1) English 50 (3 units) and English 56 (2 units). The latter to be taken if he scores between grade 8 and 11 on the Reading Test. If he scores below this range, experience shows he will not profit from reading instruction. If he scores above this range, he may take English 56 but could probably profit more in English 6. This, of course, does not eliminate a student who scores above the 14th percentile on the Mechanics section of the English Co. Op. from English 56 if he falls in the above range and needs the course as a prerequisite for his chosen major.

(2) Math 71 (3 units) or a higher math course if his scores, as provided by the student personnel office, so indicate.

(3) Psychology 2 (1 unit). This will be provided in special sections so that counselors can work with the students.

c. To complete his program the student may take:

(1) Health Education
(2) Introductory activity courses in Art, Music, Drama, Home Economics, etc.
(3) Exploratory courses in occupational areas so long as they do not require basic English or mathematical skills for successful completion.

4. If the student completes this program with a 2.0 grade average or better, he may proceed into the courses for which he has met the prerequisites and which are appropriate for his objective.

5. If the student completes this program with less than a 2.0 grade average, he will have two choices:

a. He may select an appropriate and realistic limited program as outlined above (2). If he meets with success here and later decided once again to secure an Associate degree or to complete a transfer program, he may do so after completing the prerequisite courses.

b. He will be disqualified under the present probation standards, even though attending only one semester, since there is no other avenue open.

6. The objective of this program is, of course, to see, through careful counseling during the remedial semester, that the vast majority of students who complete the semester take alternative (a) above.

APPROVED BY CURRICULUM AND INSTRUCTION COMMITTEE MARCH 24, 1965
APPROVED BY PRESIDENT'S CABINET MARCH 26, 1965

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